

REMARKS

In the Office Action dated May 19, 2003, claims 1-26 are pending. Claims 1, 6, 9, 20, 23, and 25 have been amended. Claims 27-31 are newly added claims. Claims 1, 9, 20, and 27 are independent claims from which all other claims depend therefrom.

Claims 23 and 25 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 23 has been amended such that it now depends on claim 22. As such, there is now proper antecedent basis for "said manifold". Claim 25 has also been amended changing "tubular" to "tube". Thus, Applicant submits that claims 23 and 25 are now in a condition for allowance at least with respect to 35 U.S.C. 112.

Claims 1-7, 9-13, 15, 17-23, and 25-26 stand rejected under 35 U.S.C. 102(b) as being anticipated by Breslin (USPN 5,474,685).

Claims 1, 9, and 20 are similar and will therefore be described together. Claim 1 recites a method of removing free product from a groundwater. The method includes determining the existence of any free product in the groundwater. One or more extraction points are provided and are in communication with the collection of the free product. The extraction points are placed in communication with a vacuum source. The free product is removed from the groundwater via a non-float style mechanism. Claims 9 and 20 recite a system for recovering free product from a groundwater and have similar limitations as that of claim 1. Claim 9 and 20 do not include the limitation of removing groundwater via a non-float style mechanism. Claim 9 further includes the limitation of creating an entrained flow condition in the drawing of the free product. Claim 20 further includes the limitations of utilizing one or more extraction tubes to extract the free product and drawing the free product and vapor via each of the tubes.

Breslin discloses an apparatus for detecting and recovering immiscible liquids. The apparatus of Breslin includes a float mechanism or floating recovery unit, a sensor, and a pump that are used to extract the liquids. The liquids are extracted in the form of a floating fluid, such as oil. Only the floating liquid is extracted up a single conduit.

Float mechanisms are commonly used and are difficult to adjust and maintain. Float mechanisms must continually be adjusted with the fluctuating of free product and ground water levels. Also, float mechanisms are passive in that they recover product as the product naturally flows into the extraction point. A float system has a relatively small radius of fluid influence or draw. Additionally, float mechanisms, such as that of Breslin, are limited in their ability to recover product to a particular depth. Without the presence of a "perfect vacuum" fluid, such as water and free product, can only be recovered up to depths of approximately 32' and 34', respectively. As such, a float system as described is unable to extract fluids that are deeper than 34'.

The method of claim 1 draws the free product without use of a float mechanism. The method of claim 1 minimizes the amount of adjustments to perform fluid extraction and is not limited in extraction ability as a system using a float mechanism.

The system of claim 9 is an active system in that it creates an entrained flow condition to draw the free product. The term "entrained flow" refers to a phenomenon by which fluid is pushed upward by vapor having a high velocity. Due to the entrained flow condition the system of claim 9 is not limited to fluid extraction depths of 32' and 34'. Also, the radius of influence, of the system of claim 9, is larger as compared to the radius of influence of a float system. Thus, the system of claim 9 extracts the free product at a quicker rate over that of a float system.

The system of claim 20 draws the free product and vapor up each of the extraction tubes. In so doing, the system of claim 20 is capable of drawing

both liquid phase product and vapor phase product up each of the extraction tubes, which increases the amount of product extracted. The apparatus of Breslin draws only the floating liquid up the single conduit. Thus, Breslin does not teach or suggest each and every element of claims 1, 9, and 20, therefore Applicant submits that claims 1, 9, 20, and 27 are novel, nonobvious, and are in a condition for allowance at least with respect to 35 U.S.C. 102(b) in view of Breslin.

Claims 1 and 3-7 stand rejected under 35 U.S.C. 102(b) as being anticipated by Croy (USPN 5,509,757) or Bzorgi (USPN 5,989,414). Both Croy and Bzorgi disclose use of a float type mechanism similar to that of Breslin. As a consequence, Croy and Bzorgi have similar disadvantages and limitations as that of Breslin, as described above. Thus, Applicant submits that Croy and Bzorgi alone or in combination do not teach or suggest each and every element of claim 1, therefore claim 1 is novel, nonobvious, and is in a condition for allowance at least with respect to 35 U.S.C. 102(b) in view of Croy and Bzorgi.

Claims 2 and 8-15 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Croy in view of Billings et al. (USPN 5,221,159) or Ellis (USPN 6,464,005 B1) and claims 2, 8-15, and 17-26 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Bzorgi in view of Billings et al. or Ellis.

Billings discloses a system for extracting liquid contaminant within a soil. Billings discloses the use of a gas-impermeable pipe for the extraction of gases and the use of a free-product extractor for the extraction of liquid contaminant. Ellis discloses a system for extracting vapor from a contaminated area. As for claim 9, like Breslin, Croy, and Bzorgi, neither Billings nor Ellis teach or suggest alone or in combination the recovering of free product, utilizing a vacuum source to create an entrained flow condition, from a groundwater. Neither Billings nor Ellis teach or suggest creation of an entrained flow condition. As for claim 20, like Breslin, Croy, and Bzorgi,

neither Billings nor Ellis teach or suggest alone or in combination the extracting of free product and vapor, through each of one or more extraction tubes, from a groundwater. Billings uses a different pipe for gas as that used for liquid and extracts either gas or liquid at any instance in time. Ellis uses a single tube to extract only vapor. Thus, Applicant submits that Croy, Bzorgi, Billings, and Ellis alone or in combination do not teach or suggest each and every element of claims 9 and 20, therefore claims 9 and 20 are novel, nonobvious, and are in a condition for allowance with respect to 35 U.S.C. 103(a) in view of Croy, Bzorgi, Billings, and Ellis.

Applicant further submits that objections and rejections with regards to claims 1, 9, and 20 have been overcome and since claims 2-8, 10-19, and 21-26 depend from claims 1, 9, and 20, respectively, they are also novel, nonobvious, and are in a condition for allowance for at least the same reasons.

Claim 27 is a newly added claim. Claim 27 is similar to claim 1. Claim 27 does not include the limitation of removing groundwater via a non-float mechanism, but does include the limitation of utilizing entrained flow, like the system of claim 9. Neither Breslin, Croy, Bzorgi, Billings, nor Ellis alone or in combination teach or suggest recovering free product, utilizing a vacuum source to create an entrained flow condition, from a groundwater. Thus, claim 27 is also novel, nonobvious, and is in a condition for allowance in view of Breslin, Croy, Bzorgi, Billings, and Ellis.

Claims 28-31 are also newly added claims and depend from claims 1, 9, and 20. Claims 28-31 provide additional limitations over the limitations provided in claims 1, 9, and 20. Each of the separate limitations provided by claims 28-31 in combination with the limitations provided in claims 1, 9, and 20 are also not taught or suggested by the above stated references. Thus, the additional claim limitations provided in claims 28-31 further provide additional novelty over that of claim 1, 9, and 20 and are therefore also nonobvious and are in a condition for allowance.

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In light of the amendments and remarks, Applicant submits that all objections and rejections are now overcome. The Applicant has added no new matter to the application by these amendments. The application is now in condition for allowance and expeditious notice thereof is earnestly solicited. Should the Examiner have any questions or comments, he is respectfully requested to call the undersigned attorney.

The Commissioner is hereby authorized to charge any fees or credit any overpayment to Deposit Account No. 50-0476.

Respectfully submitted,

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